

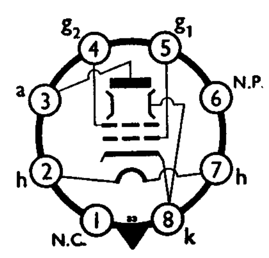
BEAM PENTODE

6·3V INDIRECTLY HEATED

KT66

JUNE, 1956

BASE CONNECTIONS AND VALVE DIMENSIONS



View from underside of base.

Base : International Octal.
Bulb : Dome top tubular.

Overall length :	125—135	mm.
Seated length :	111—121	mm.
Max. diameter :	53	mm.

RATING

Pentode Connection

V_h		6·3	V
I_h		1·27	A
V_a		500	V
V_{g2}		400	V
p_a		25 max.	W
p_{g2}		3·5 max.	W
r_a	at $V_a = V_{g2} = 250$, $V_{g1} = -15$	22·5	kΩ
g_m	at $V_a = V_{g2} = 250$, $V_{g1} = -15$	6·3	mA/V

Triode Connection

V_a		400		250	V
p_a		28·5		28·5	W
r_a	at $V_{g1} = -38$	1·45	at $V_{g1} = -19$	1·3	kΩ
g_m	at $V_{g1} = -38$	5·5	at $V_{g1} = -19$	6·15	mA/V

CAPACITANCES (of unscreened valve)

$c_{g1\text{-}all}$ 16 pF $c_{a\text{-}all}$ 11·5 pF $c_{a\text{-}g1}$ 1·1 pF

TYPICAL OPERATION

Single Valve. Class A. Triode Connection

$V_{a,\ g2}$	250	400	V
V_{g1} (approx)	−19	−38	V
$I_{a,\ g2}$	60	63	mA
v_{in} (pk)	19	38	V
$p_{a,\ g2\ (o)}$	15	25	W
R_k	315	600	Ω
R_L	2·75	4·5	kΩ
P_{out}	2·2	5·8	W
D	6	7	%

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Push-Pull. Class AB₁. Triode Connection (Two Valves)

Data per pair unless otherwise stated

$V_{a, g2}$	250	400	V
V_{g1}	−20	−38 approx.	V
$I_{a, g2}$	110	125	mA
$v_{in\ (pk)\ (g1\text{-}g1)}$	40	80	V
R_k (per valve)	360	600	Ω
$R_{L\ (a\text{-}a)}$	2·5	4	kΩ
P_{out}	4·5	14·5	W
D	2	3·5	%

Single Valve. Class A. Pentode Connection

V_a	250	V
V_{g2}	250	V
V_{g1}	−15 approx.	V
I_a	85	mA
I_{g2}	6·3	mA
$v_{in\ (pk)}$	15	V
$p_{a\ (o)}$	21·5	W
R_k	160	Ω
R_L	2·2	kΩ
P_{out}	7·25	W
D	9	%

Push-Pull. Class AB₁. Pentode Connection (Two Valves)

Data per pair unless otherwise stated.

	No signal	Max. signal	
V_a	250	250	V
V_{g2}	250	250	V
V_{g1}	−17·5 approx.	—	V
I_a	162	165	mA
I_{g2}	12	20	mA
$v_{in\ (pk)\ (g1\text{-}g1)}$	—	36	V
p_a (per valve)	20	12	W
p_{g2} (per valve)	1·5	2·5	W
R_k (per valve)	200	200	Ω
$R_{L\ (a\text{-}a)}$	—	4	kΩ
P_{out}	—	17	W
D	—	4	%

Push-Pull. Class AB₁. Pentode Connection (Two Valves)

Data per pair unless otherwise stated.

	No signal	Max. signal	
$V_{a\ (b)}$, $V_{g2\ (b)}$	450	425	V
V_a	415	390	V
V_{g2}	300	275	V
I_a	104	125	mA
I_{g2}	5	18	mA
$v_{in\ (pk)\ (g1\text{-}g1)}$	—	70	V
p_a (per valve)	21·5	9·5	W
p_{g2} (per valve)	0·75	2·5	W
R_k (per valve)	500	500	Ω
$R_{L\ (a\text{-}a)}$	—	8	kΩ
P_{out}	—	30	W
D	—	6	%
$V_{a\ (rms)}$ (to rectifier)	—	500+500	V
R_{source} (HT)	—	600	Ω

Push-Pull. Class AB_1. Pentode Connection. Fixed Bias (Two Valves)
Data per pair unless otherwise stated.

	No signal	Max. signal	
V_a	510	475	V
V_{g2}	395	360	V
V_{g1}	−40 approx.	—	V
I_a	80	175	mA
I_{g2}	3	19	mA
v_{in} (pk) (g1-g1)	—	80	V
p_a (per valve)	21	17	W
p_{g2} (per valve)	0·6	3·5	W
R_L (a-a)	—	5	kΩ
P_{out}	—	50	W
D	—	5	%

Screen grids supplied from stabilised source.

GENERAL

For the prevention of parasitic oscillation a series resistor of 100/300 Ω should be connected close to the screen grid terminal of the valve socket. When the valve is triode connected, this resistor should be connected between screen grid and anode. A control grid series resistor of 10/50 kΩ is also recommended. In push-pull applications having a large change in anode current between the quiescent and full output conditions, an inductor input filter circuit of good regulation should be used. A badly regulated supply will cause a fall in power output and/or excessive quiescent anode dissipation.

The use of a common auto-bias resistor is not recommended except in applications where the maximum anode dissipation is not attained under any condition of operation.

The maximum permissible D.C. resistance between control grid and cathode is limited to 0·5 MΩ for auto-bias and 0·1 MΩ for fixed bias applications.

SCREENING

No internal or external screening is fitted to the valve.

MOUNTING

Any position.

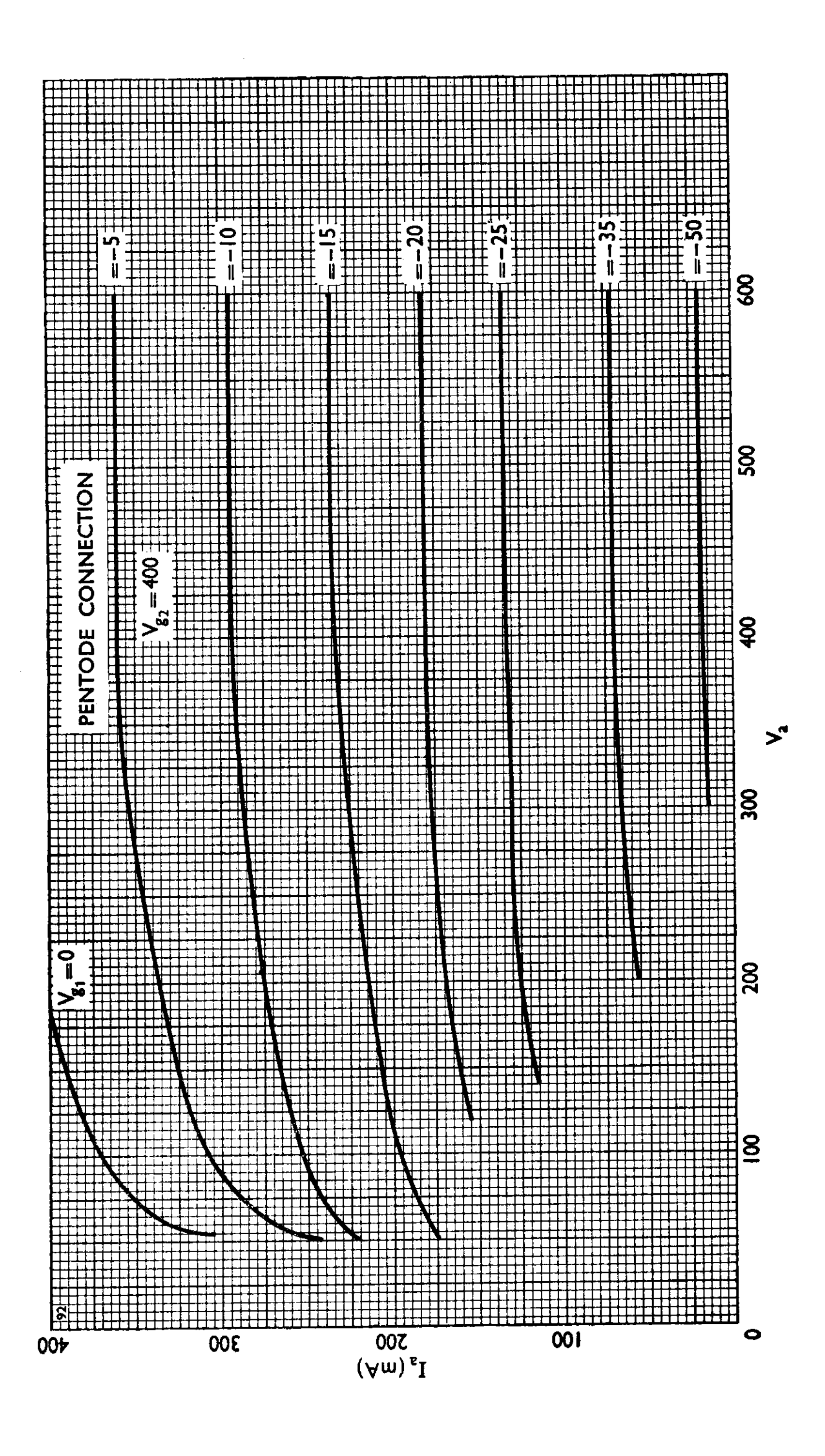
RETAINING

No retaining device is normally necessary.

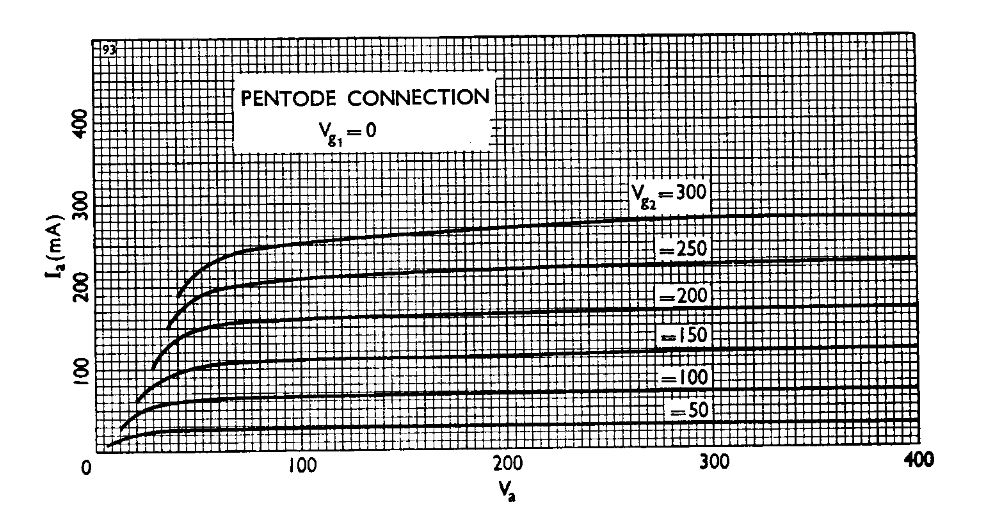
VENTILATION

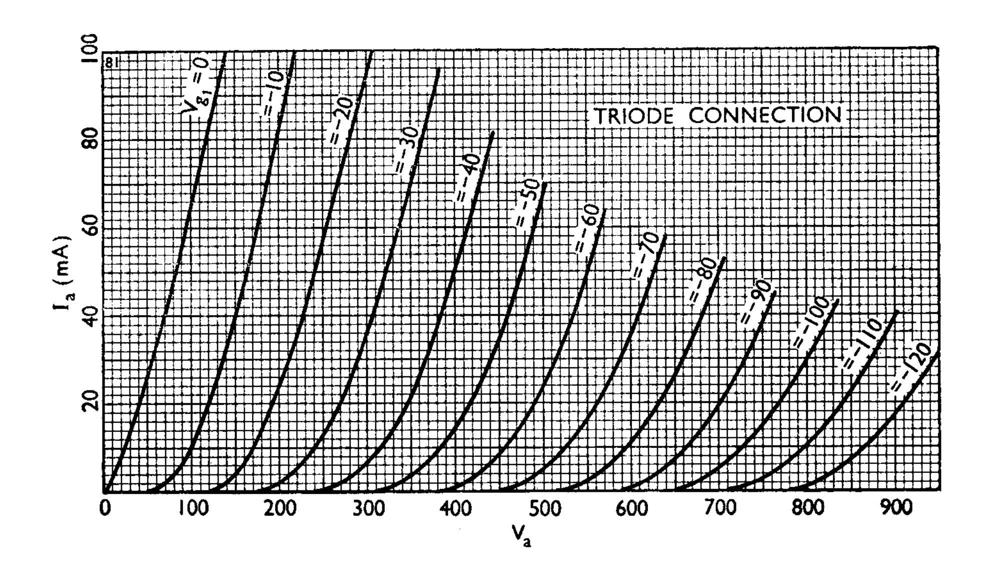
Adequate ventilation around the bulb should be provided.

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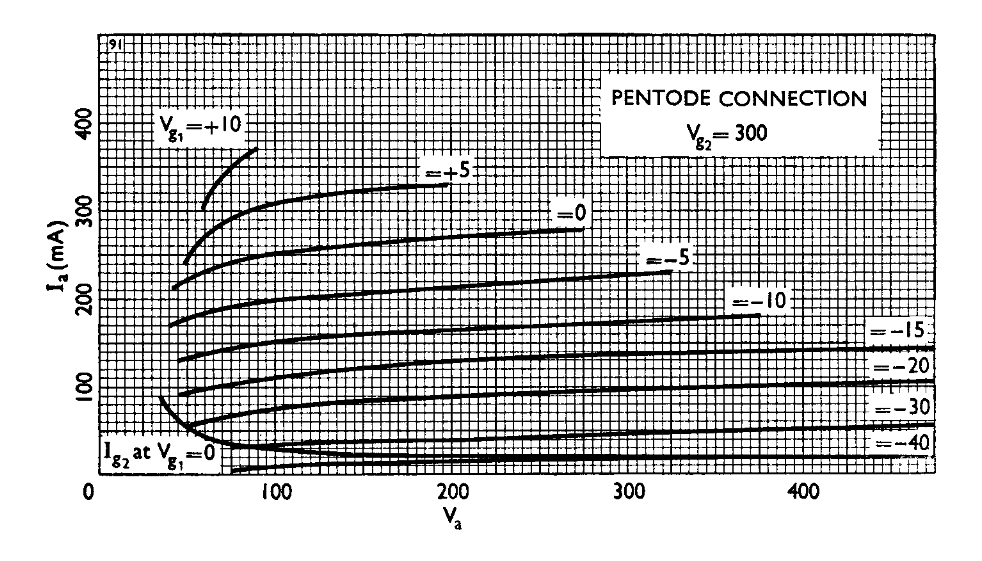


PENTODE CONNECTION
$V_{g2}=400$
$V_{g1}=0$
=−5
=−10
=−15
=−20
=−25
=−35
=−50
I_a (mA)
400
300
200
100
0
V_a
100
200
300
400
500
600
92

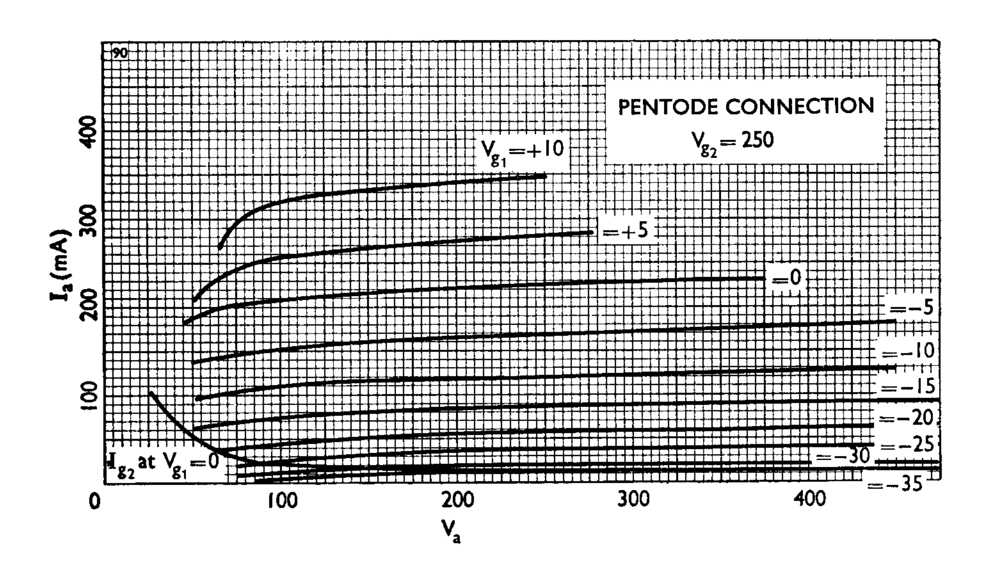

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PENTODE CONNECTION
$V_{g_1} = 0$
$V_{g_2} = 300$
=250
=200
=150
=100
=50
I_a (mA)
400
300
200
100
0
100
200
300
400
V_a


81
TRIODE CONNECTION
$V_{g_1} = 0$
=−10
=−20
=−30
=−40
=−50
=−60
=−70
=−80
=−90
=−100
=−110
=−120
I_a (mA)
100
80
60
40
20
0
100
200
300
400
500
600
700
800
900
V_a

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91
PENTODE CONNECTION
V_{g2} = 300
V_{g1} = +10
= +5
= 0
= −5
= −10
= −15
= −20
= −30
= −40
I_{g2} at V_{g1} = 0
I_a (mA)
100
200
300
400
0
100
200
300
400
V_a



90
PENTODE CONNECTION
V_{g2} = 250
V_{g1} = +10
= +5
= 0
= −5
= −10
= −15
= −20
= −25
= −30
= −35
I_{g2} at V_{g1} = 0
I_a (mA)
100
200
300
400
0
100
200
300
400
V_a

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PENTODE CONNECTION
Single Valve. Class A.
$V_a = 250$
$V_{g2} = 250$
$I_a = 85mA$
$R_L = 2{\cdot}2\,k\Omega$

D

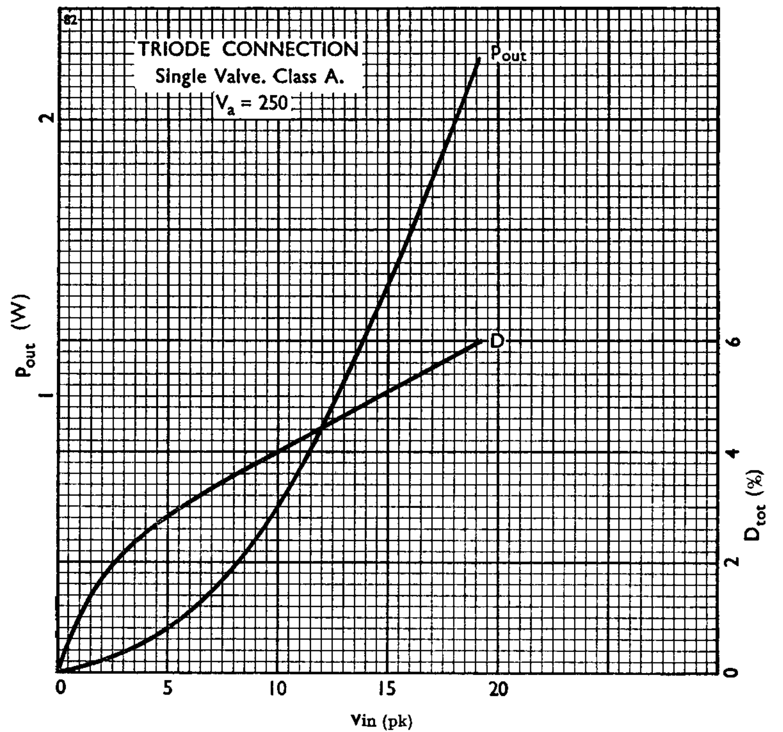
P_{out}

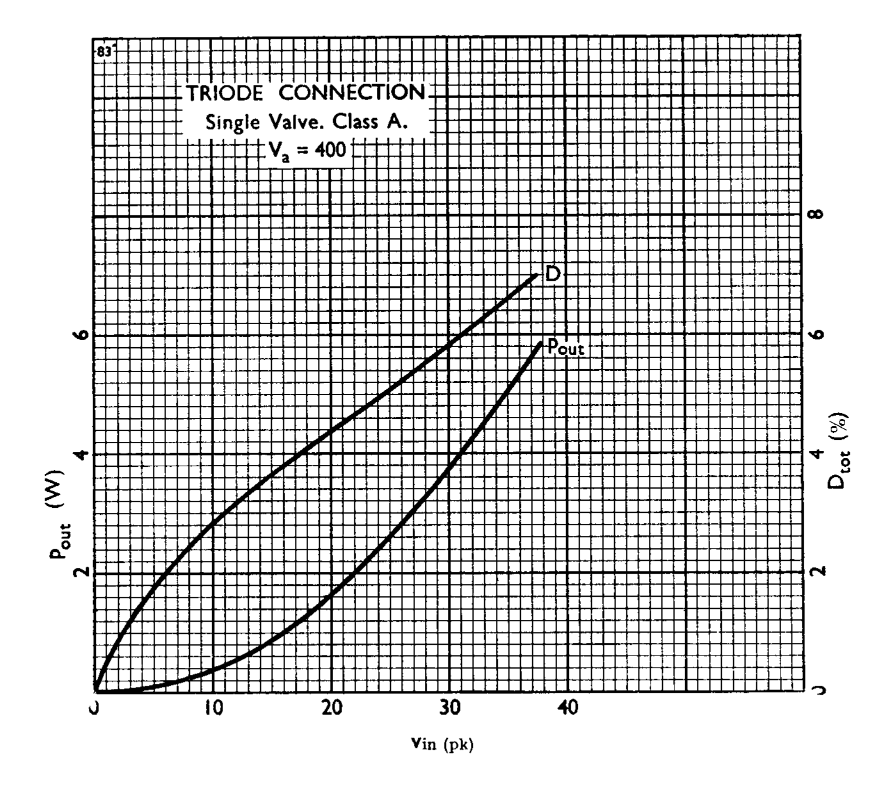
P_{out} (W)

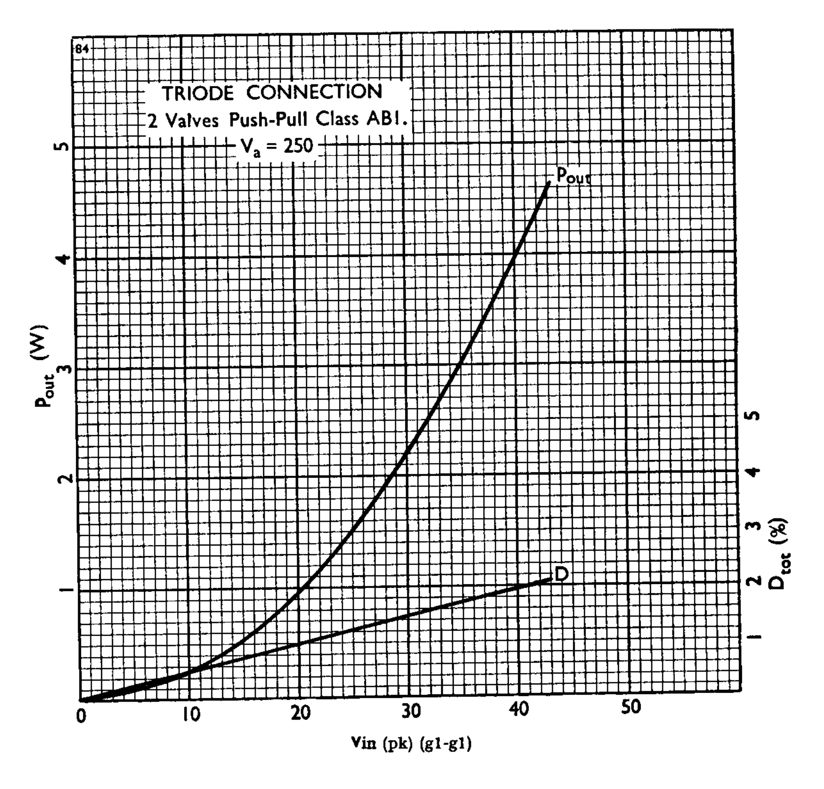
D (%)

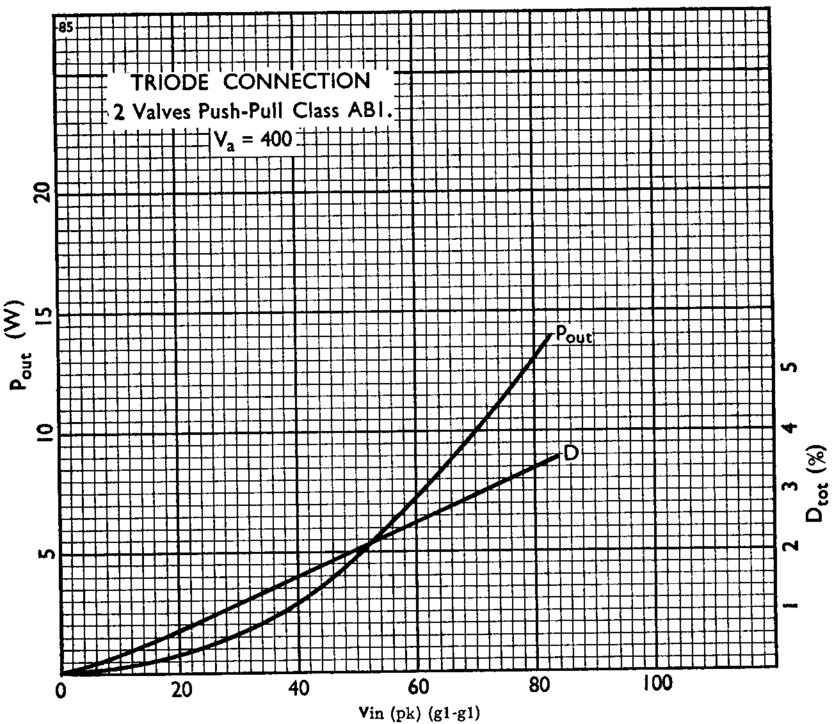
Vin (pk)

0 5 10 15

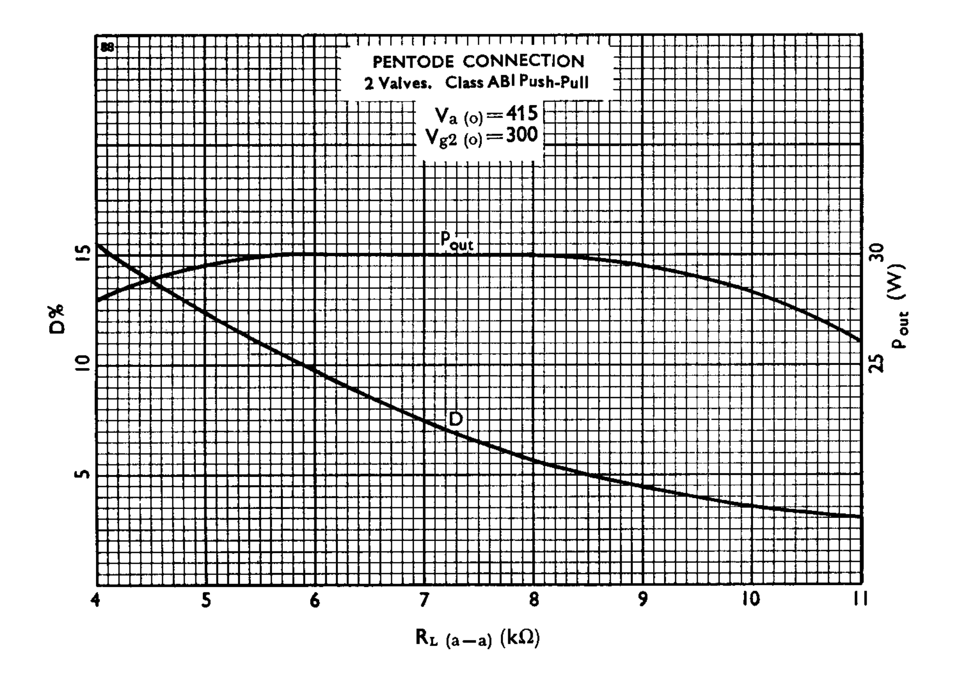


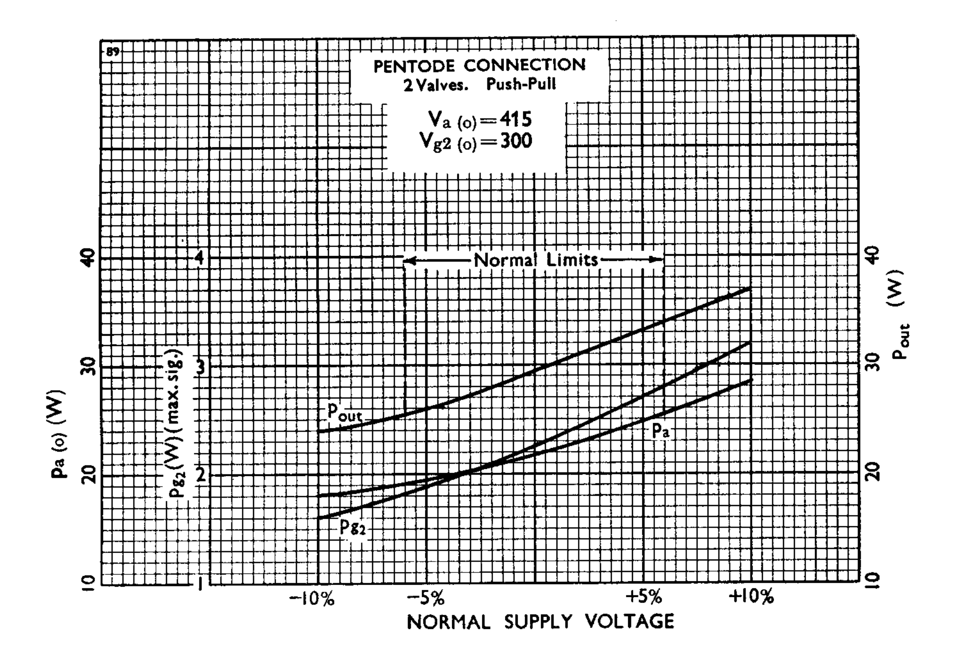

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TRIODE CONNECTION
Single Valve. Class A.
V_a = 400
D
P_{out}
P_{out} (W)
D_{tot} (%)
0
2
4
6
8
10
20
30
40
Vin (pk)


84
TRIODE CONNECTION
2 Valves Push-Pull Class AB1.
V_a = 250
P_{out}
D
P_{out} (W)
D_{tot} (%)
0
10
20
30
40
50
1
2
3
4
5
Vin (pk) (g1-g1)


85
TRIODE CONNECTION
2 Valves Push-Pull Class AB1.
V_a = 400
P_{out}
D
P_{out} (W)
D_{tot} (%)
0
20
40
60
80
100
5
10
15
20
1
2
3
4
5
Vin (pk) (g1-g1)

KT66





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